

Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
March 2001

This report summarizes Los Alamos National Laboratory (LANL) activities completed during March of fiscal year (FY) 2001 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918]), which was submitted to the New Mexico Environment Department-Hazardous Waste Bureau [NMED-HWB] on 9/30/98, and approved by NMED-HWB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

High Performing Team (HPT) Activities – The 260 and ecorisk HPTs met on March 1, 2001.

LANL representatives provided an update on February activities including the hydrogeologic studies, the bench and pilot studies, and the IM investigations. Details are provided below in the sections of this monthly report covering these studies.

NMED-HWB and LANL representatives had a brief discussion of temporary authorization (TA) and permitting for the IM wastes. Little progress has been made on this issue. At this time, on-site treatment, either via TA or permitting, will be a back-up for offsite disposal.

LANL representatives presented further implementation design information on the ecological risk activities in Canon de Valle. It was noted that: 1) six samples from a species at a study site appear to be the minimum required to obtain statistically valid comparisons between contaminated and background regions; 2) the detection limits anticipated for the biota sampling should be adequate to determine if negative effects to the spotted owl would be expected. In response to NMED-HWB concerns, LANL re-emphasized that full suite metal and HE analyses would be done during this study. LANL noted that the implementation strategy would be reviewed by the LANL ecorisk committee. NMED-HWB requested further information on ongoing ESH-20 bat studies; LANL will provide this information. LANL will also check on the status of approvals of the screening-level ecological risk assessment (SLERA) document.

LANL requested clarification on the recent NMED-HWB letter concerning use of industrial risk scenarios at New Mexico cleanup sites. LANL noted that an industrial scenario had been approved for use in the TA-16-260 CMS. NMED-HWB personnel stated that recreational scenarios, or site-specific scenarios other than residential, could be used during corrective action, provided they were based on site characteristics and were not dependent on institutional controls. Per NMED-HWB representatives, legislation regarding institutional controls for New Mexico sites is currently being drafted. It was noted that this issue would probably have to be discussed at the Bureau

Chief/Project Manager level at some time in the future. NMED-HWB also noted that a variance from the WQCC board would be required for any deviations from WQCC groundwater standards.

Points of compliance (POCs) were discussed. It was noted that typical EPA groundwater POCs are at the wellhead, whereas the WQCC standards apply to a POC that represents the entire groundwater body beneath a facility. NMED-HWB stated that LANL would need to work with the Groundwater Bureau, as well as with NMED-HWB, in future discussions on groundwater POCs. LANL noted that it plans to use the ongoing RFI investigations to guide the selection of POCs for the surface and alluvial systems. POCs will be biased to zones of highest concentration within a given hydrologic system component (e.g. to the most contaminated spring). Further discussion of this issue will continue as existing data is analyzed.

LANL representatives briefly reviewed the status of ongoing Pantex groundwater bench and pilot studies. Permanganate oxidation, dithionite reduction, and molasses-enhanced bioremediation studies were discussed. All studies appear to be effective in the laboratory; however, logistical issues associated with either pumping groundwater to a treatment facility or pumping amendments into perched groundwater appear to be significant. Chemical evidence for natural attenuation processes was discussed. RDX reductive by-products are being observed at high concentrations in Pantex perched groundwater. It was noted that an ITRD groundwater meeting is scheduled for March 7, 2001

LANL representatives noted that the ER communications and outreach team may request that the March colloquium presentation be modified and presented at upcoming stakeholder gatherings.

The next HPT meeting is scheduled for Monday April 2, 2001. Agenda items may include Pantex groundwater, TA-16-260 data review, HE groundwater modeling and waste disposal options for the Interim Measure.

RCRA Facility Investigation (RFI) Report and CMS Plan– No new activities occurred during this reporting period.

Best Management Practices (BMPs)– BMPs are being inspected quarterly and following significant precipitation events inasmuch as IM fieldwork, including site restoration, is complete except for finalization of the zero-discharge dam. No BMP repairs were required this month.

CMS Hydrogeologic Investigations–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring every other day for stable isotopes. Data from the spring and well

dataloggers was downloaded monthly. Spring snowmelt in both Martin Spring Canyon and Canon de Valle is ongoing. Levels of flow throughout these hydrogeologic systems are up considerably. Stream profiles were completed in each of these canyons in order to sample the rising limb of the hydrograph for spring snowmelt.

The wells, both alluvial and deep, were checked for both presence and level of water. All of the five alluvial wells in Canon de Valle and the three alluvial wells in Martin spring canyon contained water. Both intermediate-depth boreholes at the head of Martin Canyon contain water. This is the first time since initial drilling that the second intermediate depth borehole has contained water. A sample was collected from each of these intermediate depth boreholes. One set of weekly flow-integrated samples was collected and submitted for laboratory analysis.

Data analysis evaluating fire effects on Canon de Valle contaminants was undertaken. It appears that the immediate effects of the fire on RDX and barium abundance's in springs and alluvial wells was small. This conclusion is based on data through September 2000.

In March, 5 samples from precipitation events were collected and archived for analysis.

Ecological Risk Pilot–

The draft implementation plan for the ecological field work was submitted to the LANL ecological risk committee for review and comment. Logistical issues for the upcoming sampling were reviewed by ER and ESH-20. ESH-20's hazard control plans will be used in lieu of an ER SSHASP. However, these plans will receive the full review and authorization of a SSHASP. The ESH-IDs and excavation permits were submitted for this ecological risk sampling.

CMS Bench and Pilot Studies–Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies include:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters. A pilot-scale unit is scheduled for deployment in Martin Spring canyon.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.

6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are planned for summer of 2001.
7. Phytoremediation studies in Cañon de Valle. Native plants are being evaluated for their ability to remove HE from surface waters.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

The paperwork for the passive barrier deployment in Canon de Valle was completed including the excavation permit, ESH-ID, and SSHASP development. The readiness review for this work will be held in April.

Interim Measure (IM) –

Activities at the TA-16-260 IM were limited. Site restoration activities are complete except for capping of the zero discharge dam. This activity will be completed following spring snow melt.

The interim measures report was continued by the field work contractor.

Public and Stakeholder Involvement– No activities during this reporting period.

Percentage of CMS Completed

LANL estimates 73 % of the CMS has been completed to date. Note that this percentage does not reflect the deep wells that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

General Problem (1) The Cerro Grande fire has severely impacted the 260 RFI/CMS activities. These problems have been discussed in detail in previous monthly reports.

Action to Rectify General Problem (1): LANL will work closely with NMED through the HPT to mitigate the effects of the Cerro Grande fire. Effects of the fire on the monitoring data in Canon de Valle are being addressed (see above).

CMS Hydrogeologic Investigations

Problem (1): Questions relating to the quality of data from well R-25 remains a concern to the TA-16-260 team.

Action to Rectify Problem (1): LANL will evaluate the data from the quarterly sampling of the R-25 well to evaluate its reliability.

CMS Bench and Pilot Studies

None.

IM

None.

Key Personnel Issues

None.

Projected Work for April 2001

RFI Report and CMS Plan

- No work is scheduled for this month.

BMPs

- Inspection of existing BMPs following significant precipitation events will continue.

CMS Hydrogeologic Investigations

- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated autosamplers
- Continued precipitation monitoring and sampling for stable isotopes.
- Data analysis
- Update of site-specific health and safety plan for hydrogeologic activities
- Stream profiling in Canon de Valle and Martin Spring Canyon
- Quarterly sampling
- Annual readiness review

Ecological Risk Pilot

- Preparations for the ecological risk field study will continue.

CMS Bench and Pilot Studies

- Preparation for deployment of Stormwater Management units
- Readiness review

IM

- Data analysis and writing of IM Report
- Waste management, evaluation of waste data

Public and Stakeholder Involvement

A presentation concerning effects of the Cerro Grande fire on the hydrogeochemistry of Canon de Valle will be made at the Geological Society of America meeting in Albuquerque.